Association mondiale de la Route

World Road Association

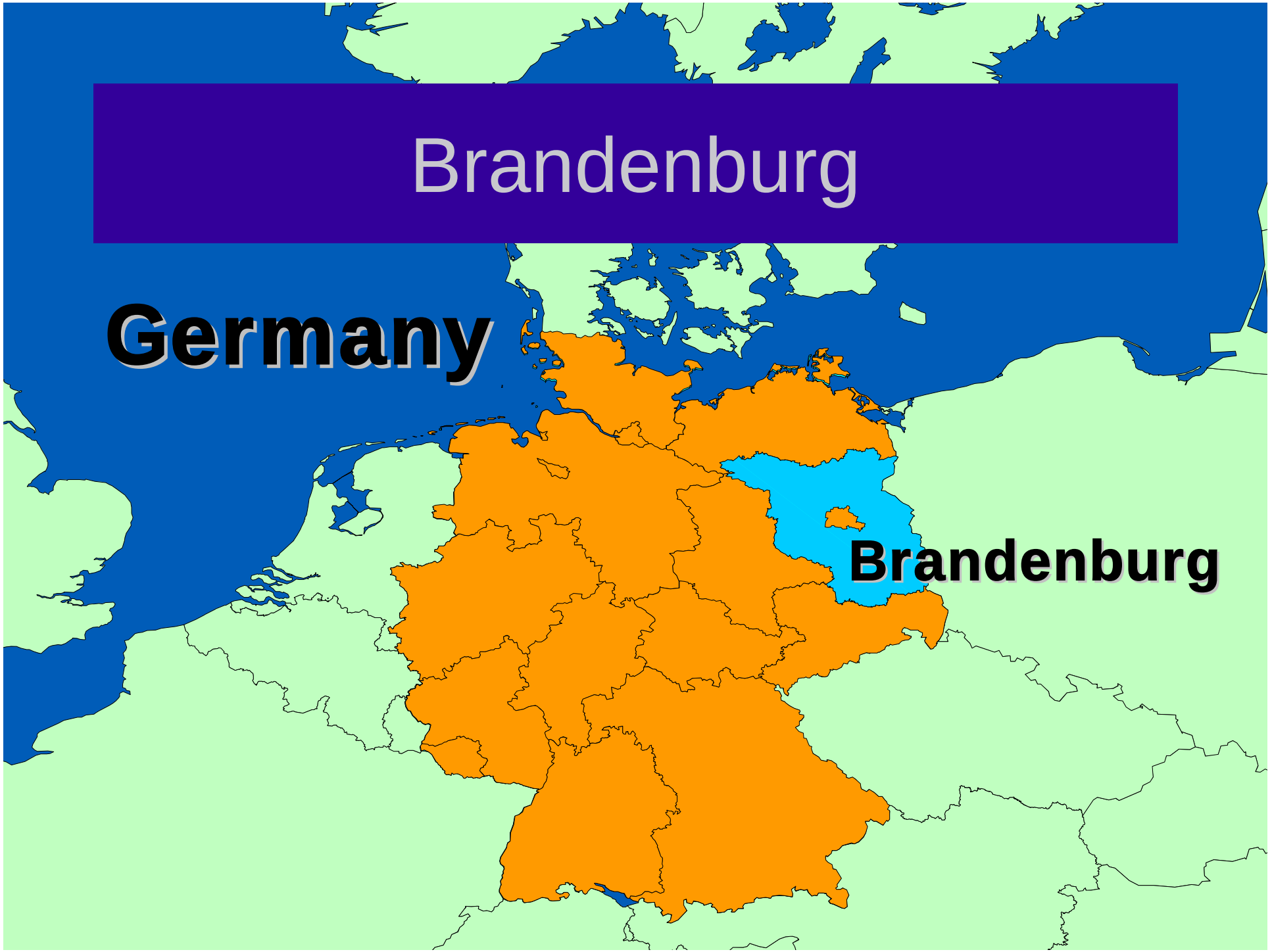
The Introduction of Road Safety Audits in Germany

Hans-Joachim Vollpracht

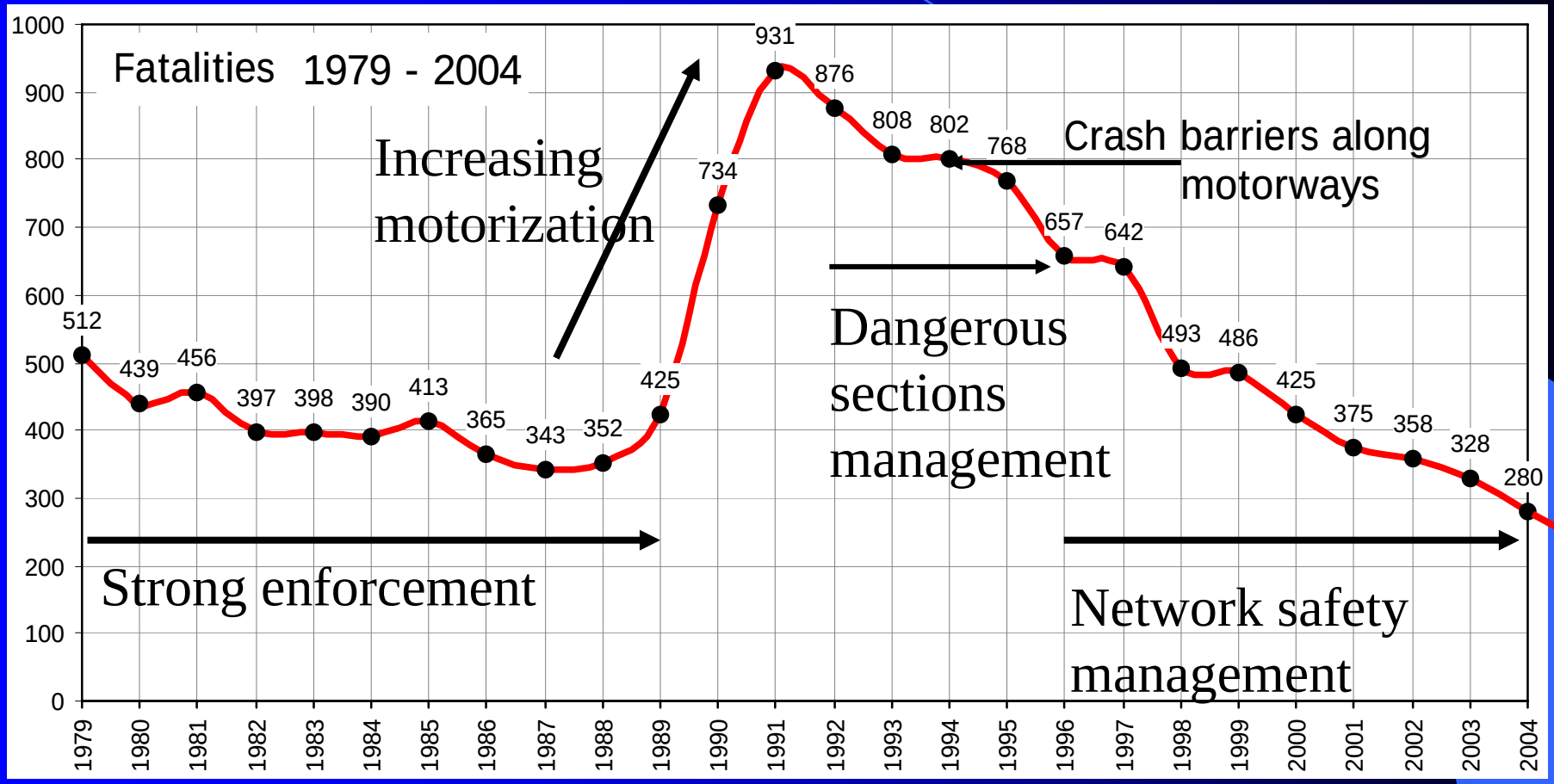
Road Safety Seminar

Lome, Togo

October 2006

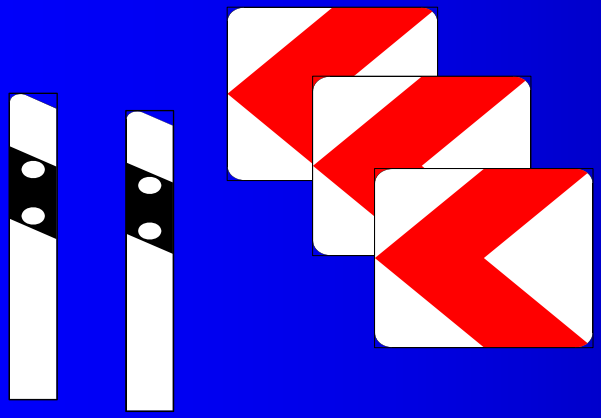

Brandenburg
Germany
Brandenburg

The example of Eastern Germany since 1979 shows: road engineering is successful!



Road Safety Champagnes

Low cost measures

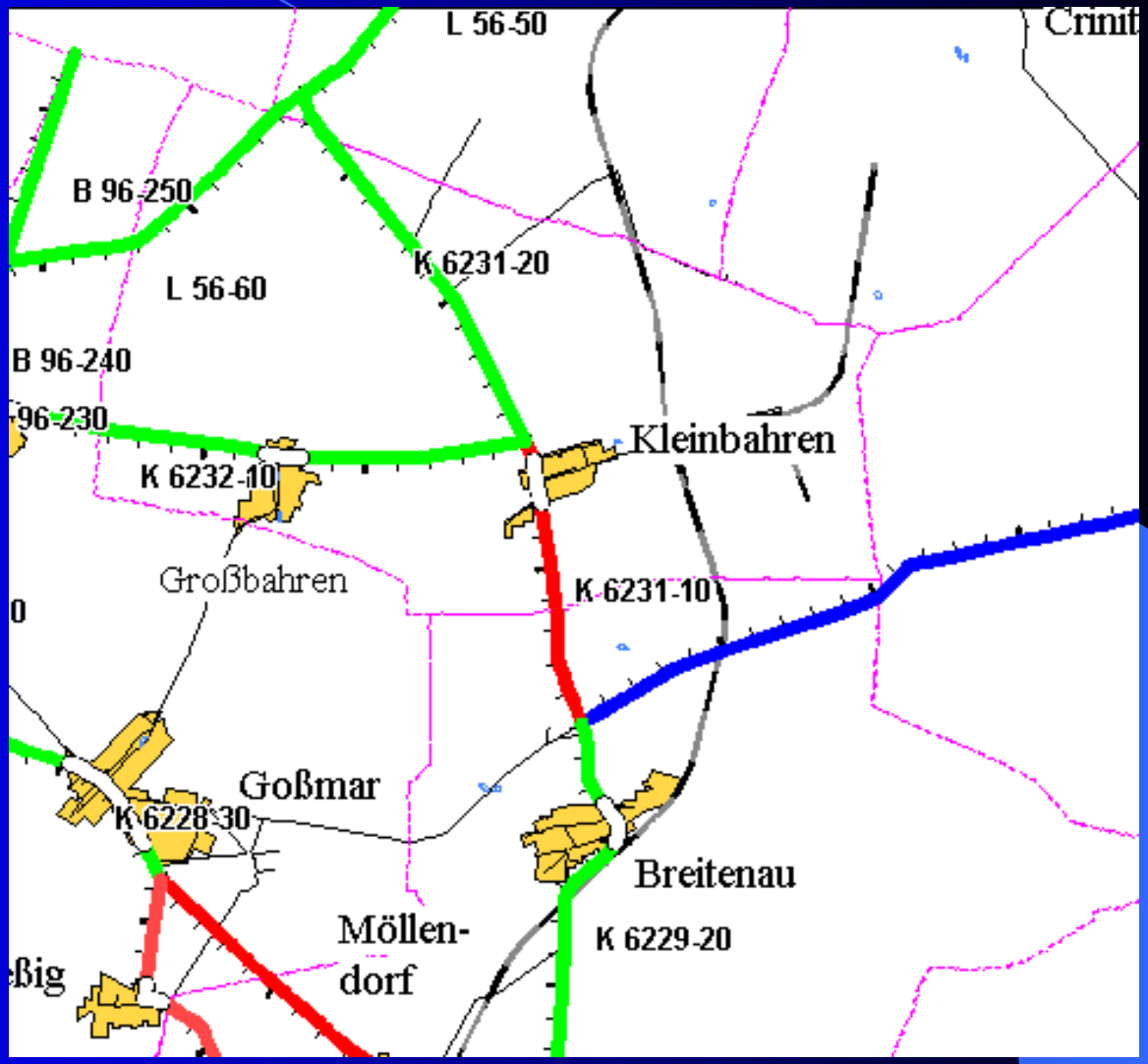


Quick wins by a Network Safety Management

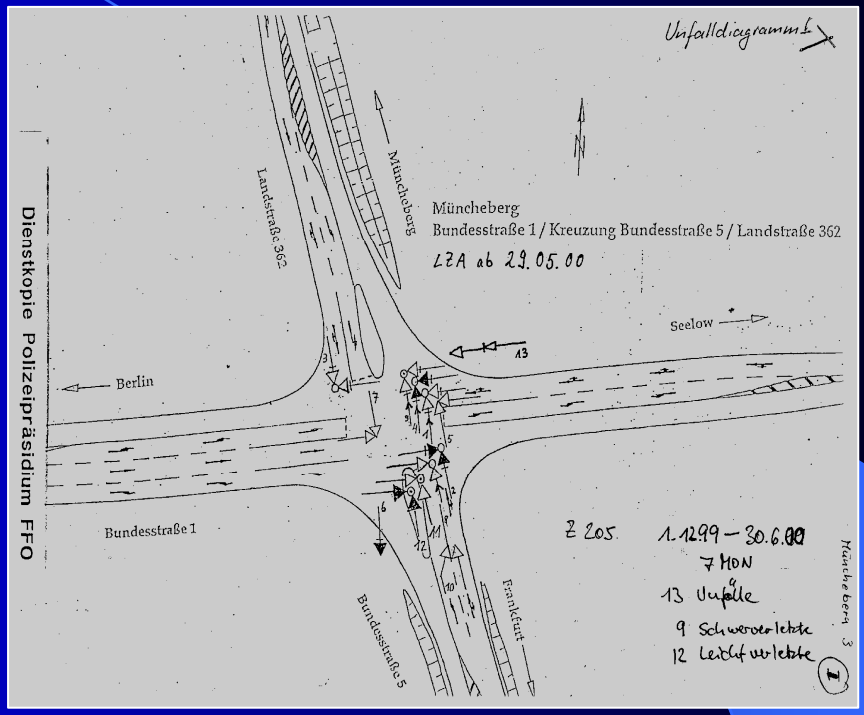
implemented 1996

accident costs:

- **< 1 T€ per km and year**
- **1- 50 T€ per km and year**
- **50-100 T€ per km and year**
- **> 100 T€ per km and year**



But the Confidence in our Guidelines….

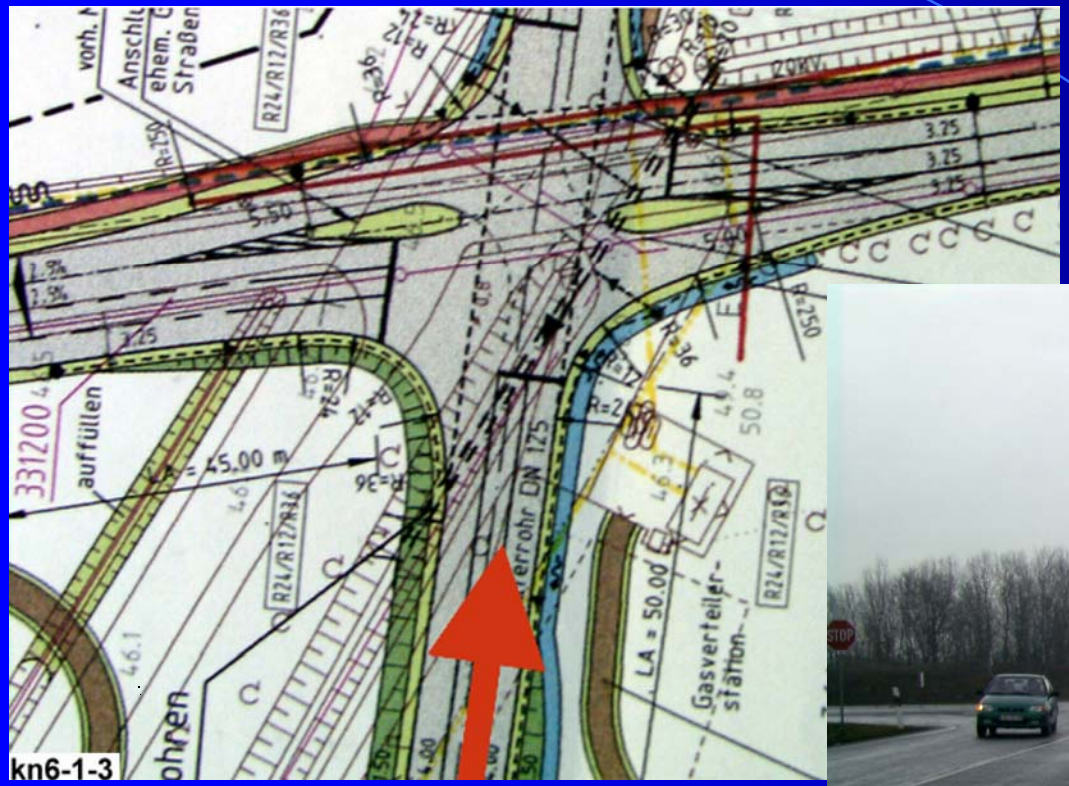


- **was shocked by black spots on newly designed bypasses**

Decission of the German Transport Ministry
shortly after the World Road Congress in Kuala Lumpur

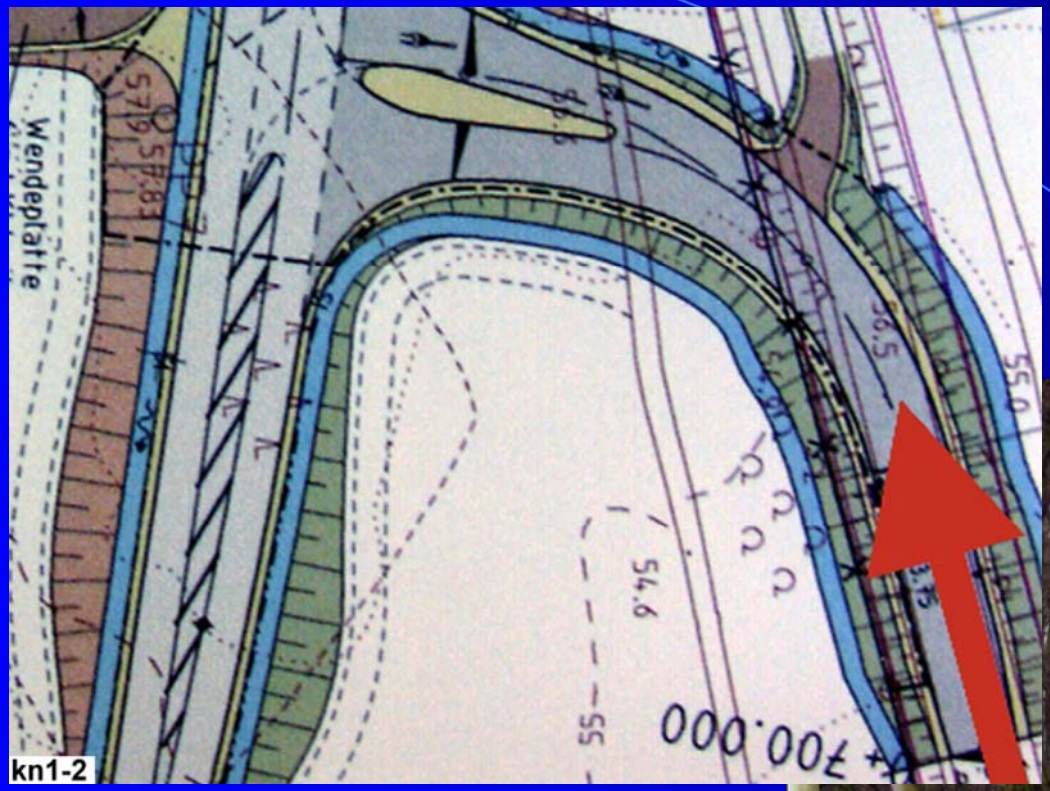
1. **To examine other existing road sections with accident accumulations**
2. **To check recent design lay outs for faults**
3. **To collect and evaluate the existing Road Safety Audit manuals world wide**
4. **To elaborate a German RSA -Guideline**

Contradiction about the right of way between traffic signing and lay out



GDV ISK Institut für Straßenverkehr Köln

Misguiding intersection



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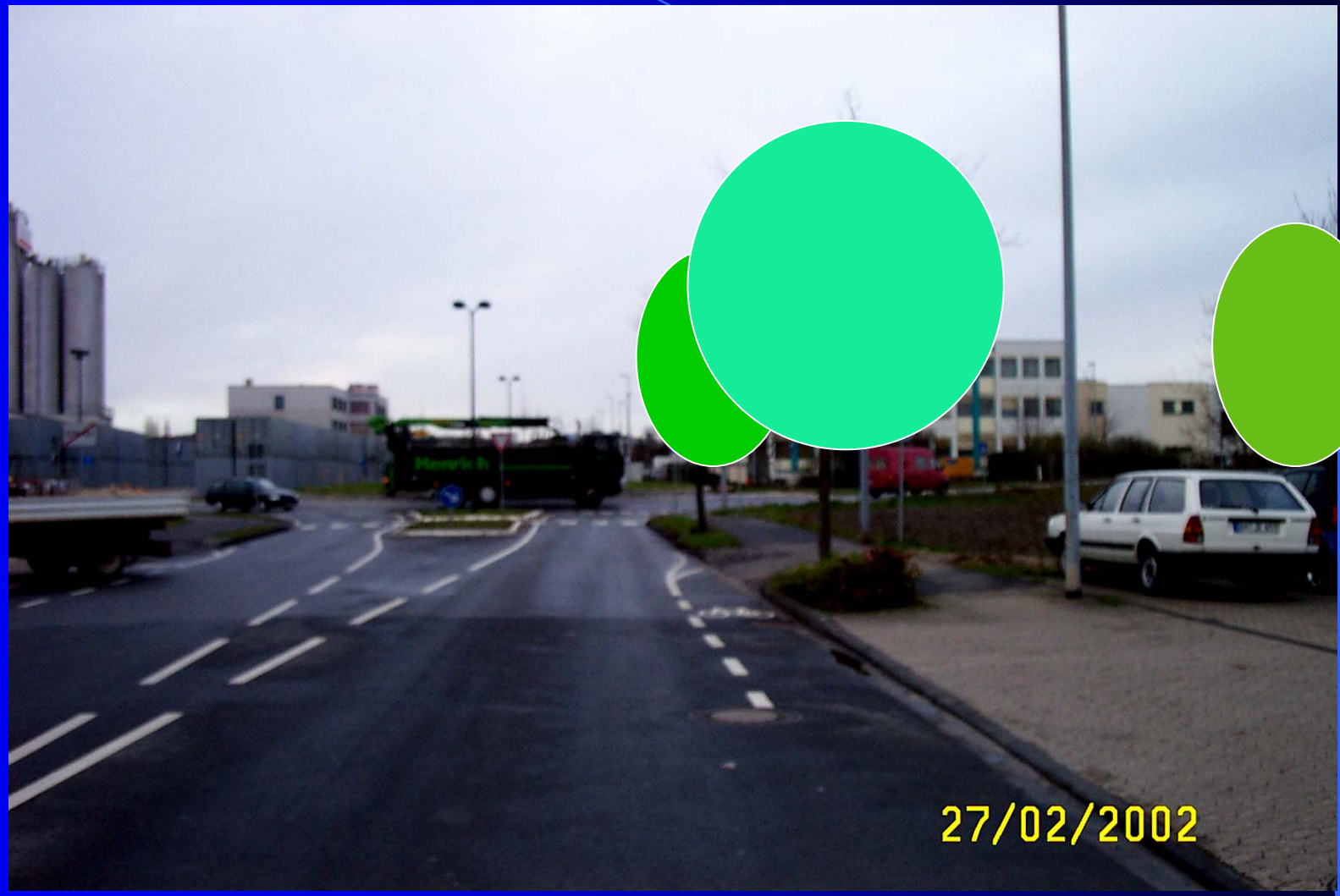
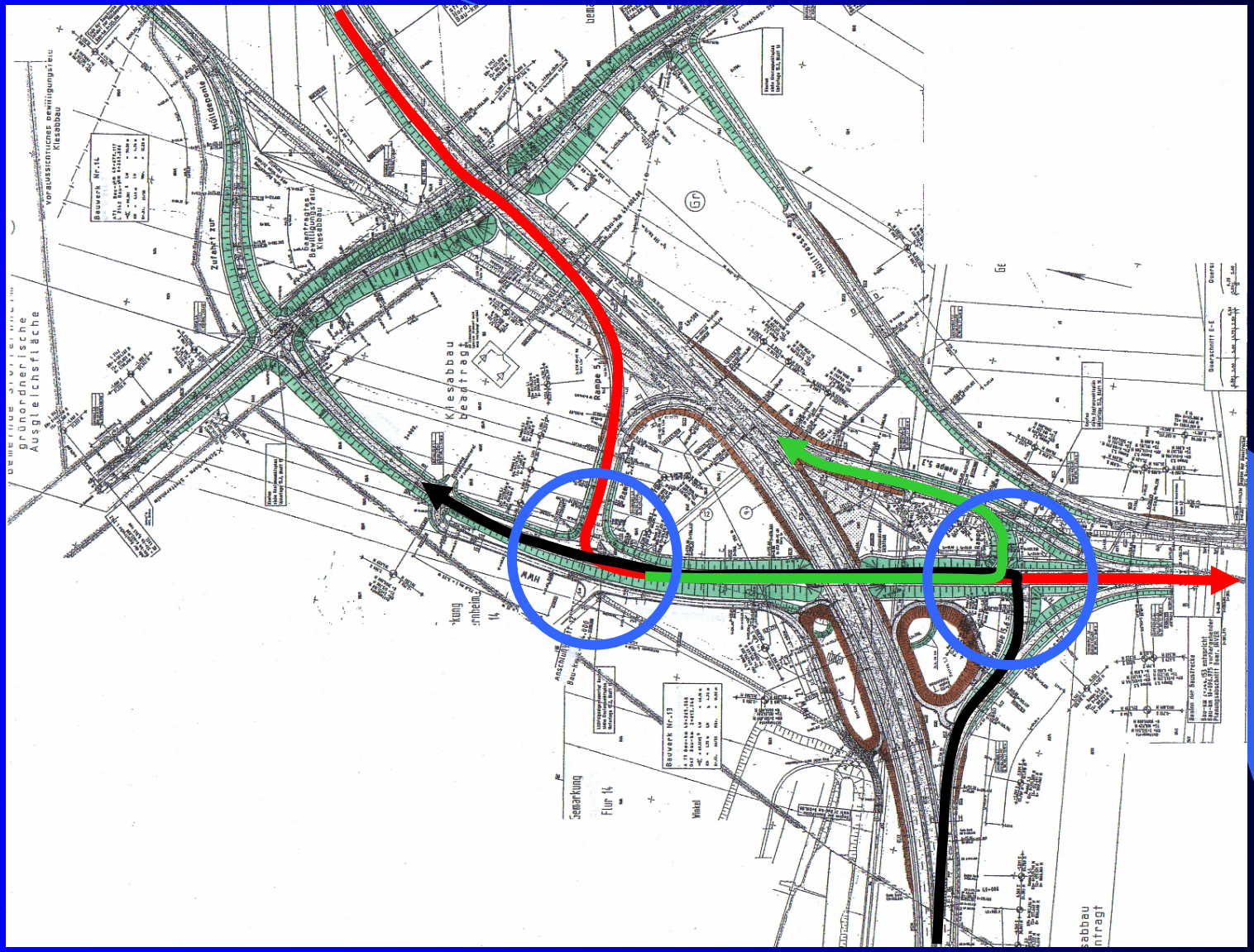
Typical mistake in a newly opened road



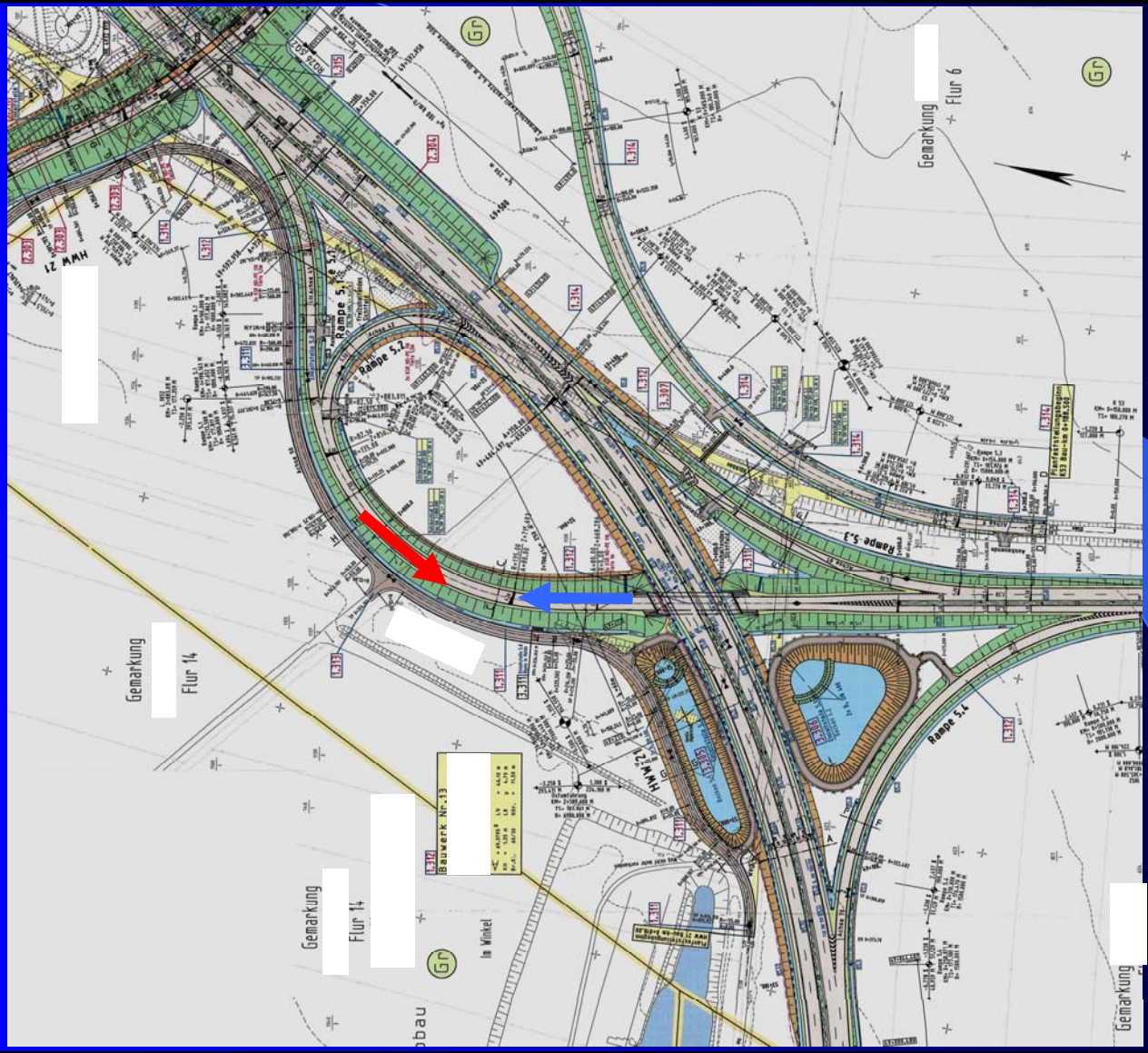
Typical Mistakes

Needs of bicyclists are not respected

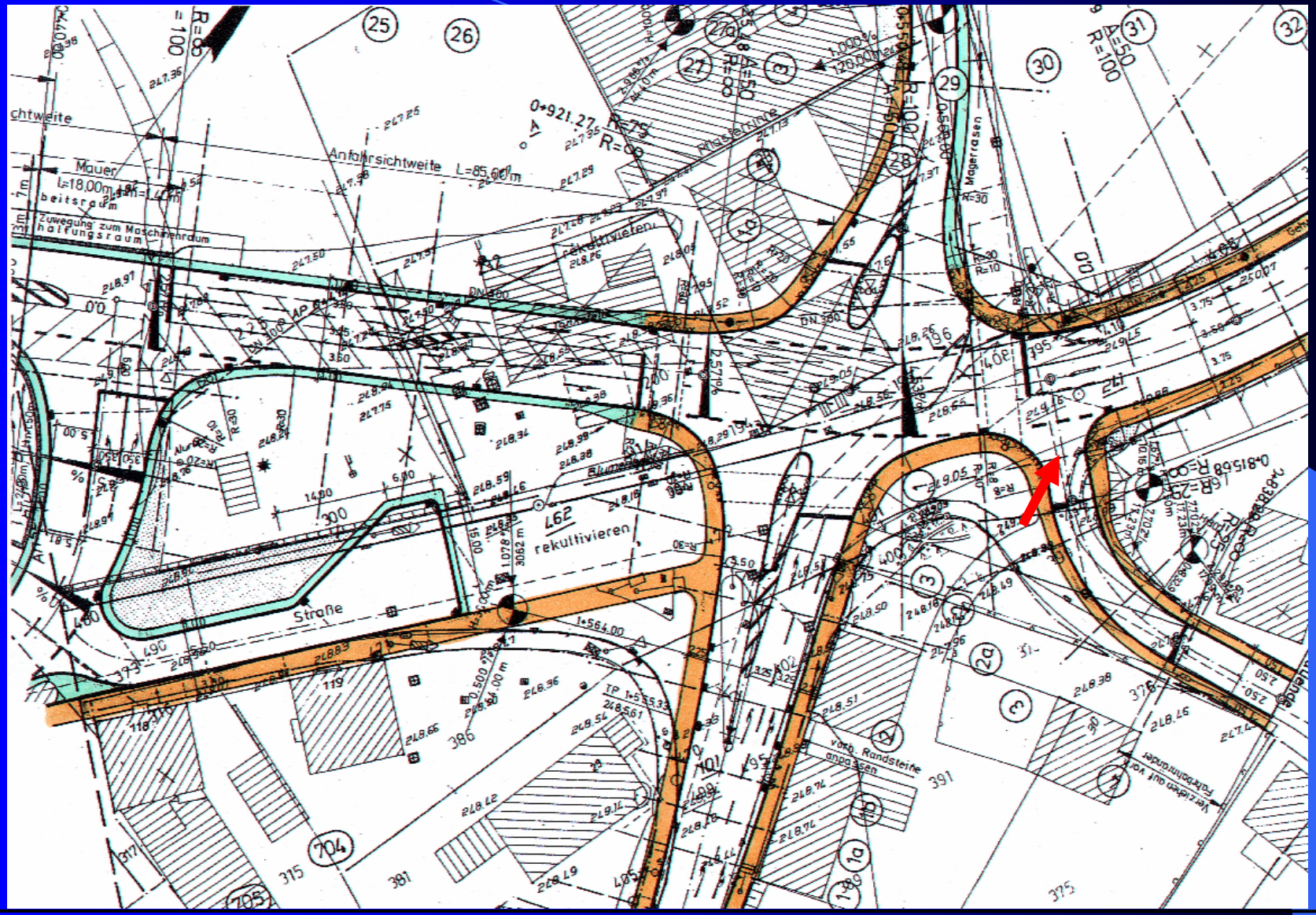
Junction layout with avoidable conflict points



Misguiding junction lay out



Surprising and unexpected intersection



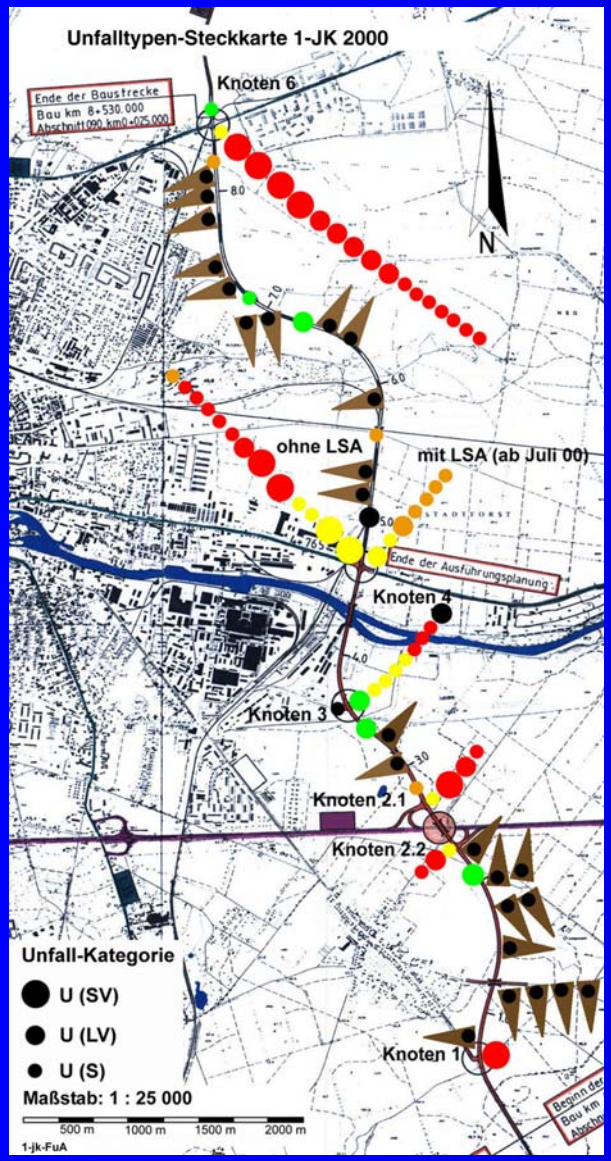
Cross town links frequently lacked:

- Measures for speed reduction
- Safe junction design
- Safe pedestrian and cyclist facilities

Major deficiencies on rural roads and/or motorways :

- Junction layout (missing left turning phases, poor road marking, poor signing etc.)
- Poor drainage
- Missing coordination of alignment and junction type.
- Lack of coordination between elevation plan and ground plan (diving and jumping)

Example of accident costs along a new constructed bypass



Year 2000

- 88 accidents
- 26 accidents with injuries and fatalities
- accident costs 3,68 Mio EUR/a

- 54 accidents at intersections
- 22 accidents with with injuries and fatalities
- accident costs at intersections
  3,41 Mio EUR/a

- Avoidable accident costs
  2,38 Mio EUR/Jahr
- Additional costs s result of the audit
  0,09 Mio EUR/Jahr

Cost/ benefit relation is 26

Countries that had already implemented Road Safety Audits

- Australia
- Malaysia
- Dane mark
- Great Britain
- New Zealand
- Norway

The Main Structure of German Audits

- Checklists
- Audit Reports in four phases of planning
- Decisions
- Evaluation of the reports

+ Experience and training

Different Checklists had to be developed for:

- Motorways
- Rural Roads
- Urban Main Roads
- Urban Access Roads

Characteristics of Checklists

- Function of the Road
- Characteristics of design and operation
- Design of Cross sections
* Lining
- Intersections
- Road furnishings
- Roadside plants
- Bridges
- Railway crossings
- Bus stops
- help for crossing pedestrians and bicycles
- Parking, delivering of goods

4 of 1.283 Questions

Design of Cross Sections

- **Is the Cross section suitable for the function of the road?**
- **Is the drainage of the surface sufficient**

Lining

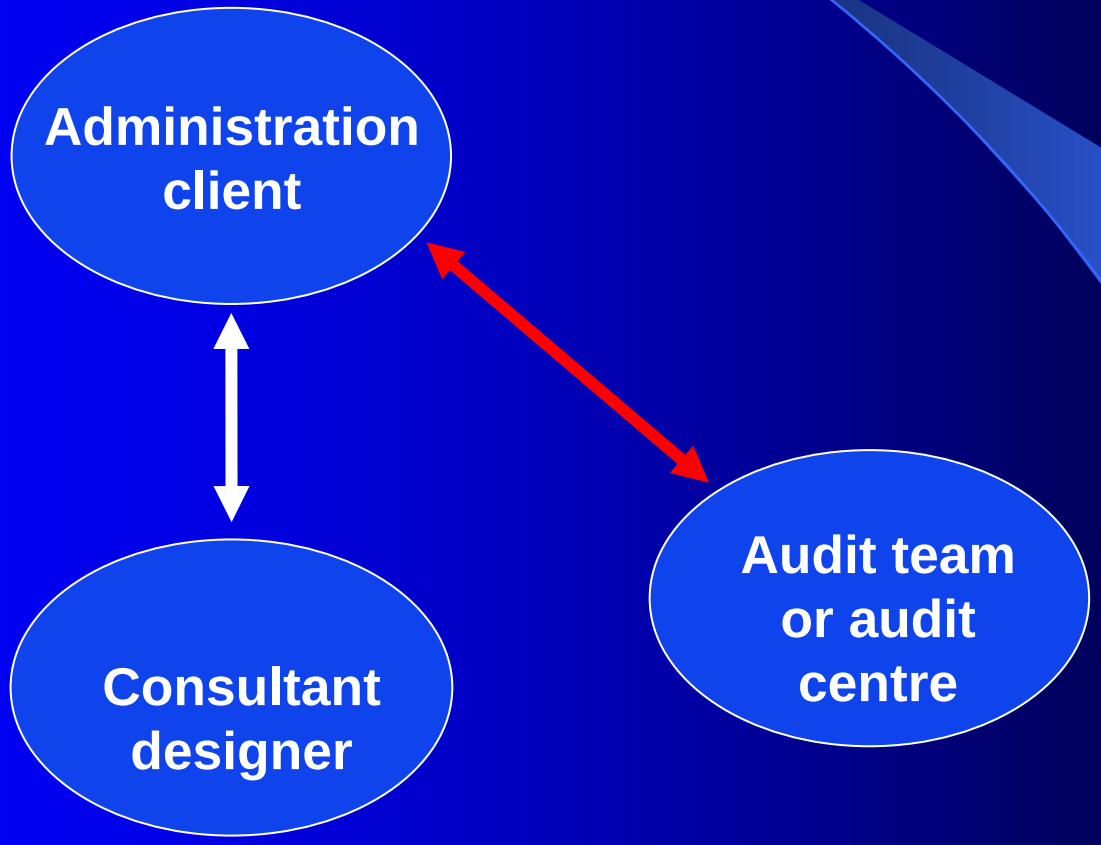
Are ground plan and elevation plan coordinated?

Is the design of the transition to the following road correct

Audit phases

- initial planning
- initial design
- detailed design and
- when road works are finished but before opening

Partners of the Audit process



The responsibilities in Audit process

- The client or Road Administration is the decision maker.
- The auditor, audit team or audit centre is the advisor of the client
- The audit centre will organize the training and certification

Tasks of the Auditors

- Is the solution safe for all relevant road users to use the traffic facility?
- Is the design that has been selected the best for traffic safety, within the decision framework of the regulations?
- Do new findings concerning traffic safety and road design make a different design seem advisable

Independent Position of the Auditors

1. “Intern” Auditors are parts of the administrations which are not concerned on the project
2. „Extern“ Auditors work on behalf of the administration.
3. Combination of „intern“ und „extern“ Auditors.

Evaluation of the reports

- 1. Qualification of the design engineers
- 2. Qualification of design Standards
- 3. Efforts to change law and regulations in cases of rivalry competitive situations

+ Experience and training

- **basic qualifications: university education master degree in civil engineering**
- **Experiences for some years in Road design and Road Safety investigations**
- **Qualification and Certification in a post graduated university training**

Phases of Qualification

- 1: Qualification seminar/basics (1 week)
- 2: Project task for rural roads (4-6 weeks)
- 3: Qualification seminar/presentation
- of project tasks, site visits etc. (1 week)
- 4: Project task for cross town links (2-3 weeks)
- 5: Training program/
- accompanied auditing (8-12 weeks)
- 6: Final discussion/certification

Auditors must have a Certificate

Zertifikat

der Bauhaus Weiterbildungsakademie Weimar e.V.
und der Bauhaus-Universität Weimar

Frau Akad. Titel/ Dienstrang
Marion Mustermann

hat an der Bauhaus-Universität Weimar das Seminar „Qualifizierung von Mitarbeitern der Straßenbauverwaltung Brandenburg zu Auditoren für das Sicherheitsaudit für Straßen (SAS)" einschließlich eines begleitenden Praktikums erfolgreich absolviert.

Weimar, den 13. Juli 2002

Der Vorsitzende
des Prüfungsausschusses und Leiter
des Qualifizierungsseminars

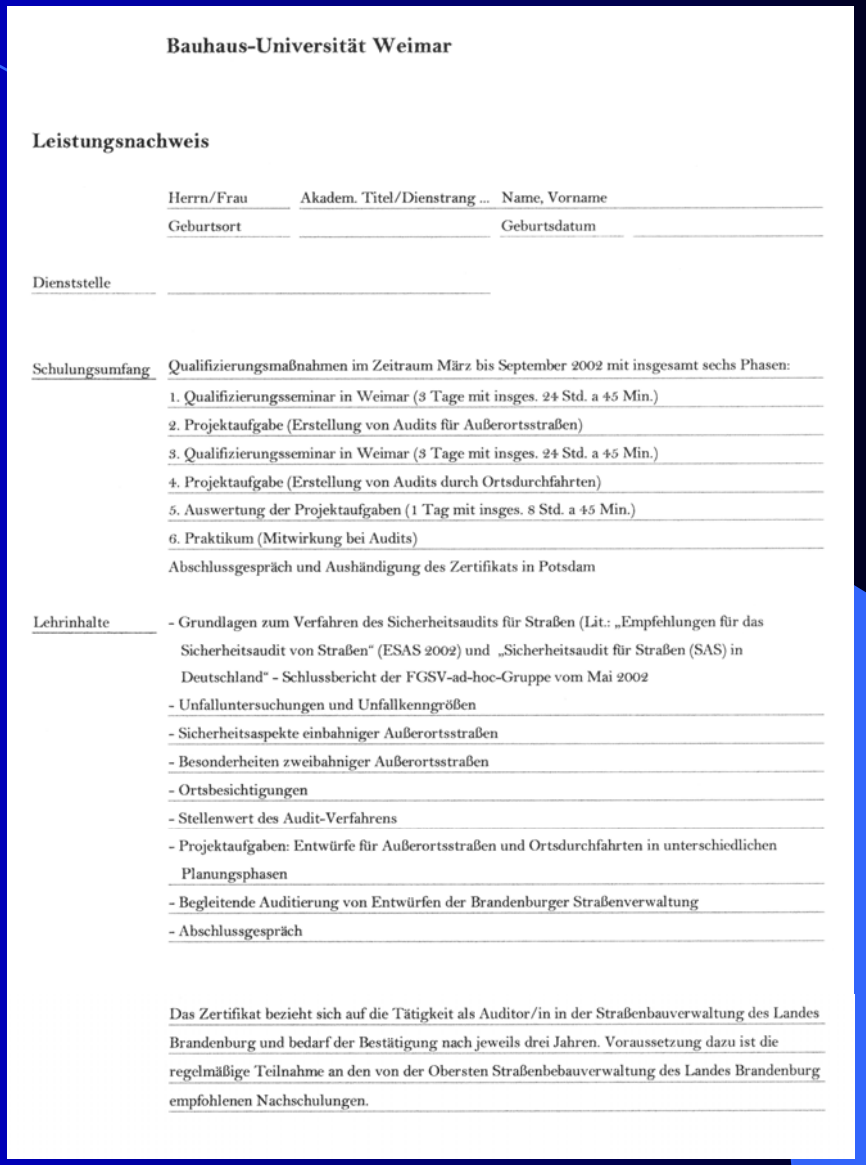
Univ. Prof. Dr.-Ing. Ulrich Brannolte

Professur Verkehrsplanung und Verkehrs-Technik der Bauhaus-Universität Weimar

Der Leiter
des Institutes für Straßenverkehr Köln (ISK)
des GDV:

Dr.-Ing. Volker Meewes

Lehrbeauftragter an der
Bauhaus-Universität Weimar



Bauhaus-Universität Weimar

Leistungsnachweis

Herrn/Frau | Akadem. Titel/Dienstrang ... | Name, Vorname

Geburtsort | Geburtsdatum

Dienststelle

Schulungsumfang: Qualifizierungsmaßnahmen im Zeitraum März bis September 2002 mit insgesamt sechs Phasen:

1. Qualifizierungsseminar in Weimar (3 Tage mit insges. 24 Std. a 45 Min.)
2. Projektaufgabe (Erstellung von Audits für Außerortsstraßen)
3. Qualifizierungsseminar in Weimar (3 Tage mit insges. 24 Std. a 45 Min.)
4. Projektaufgabe (Erstellung von Audits durch Ortsdurchfahrten)
5. Auswertung der Projektaufgaben (1 Tag mit insges. 8 Std. a 45 Min.)
6. Praktikum (Mitwirkung bei Audits)

Abschlussgespräch und Aushändigung des Zertifikats in Potsdam

Lehrinhalte:

- Grundlagen zum Verfahren des Sicherheitsaudits für Straßen (Lit.: „Empfehlungen für das Sicherheitsaudit von Straßen" (ESAS 2002) und „Sicherheitsaudit für Straßen (SAS) in Deutschland" - Schlussbericht der FGSV-ad-hoc-Gruppe vom Mai 2002
- Unfalluntersuchungen und Unfallkenngrößen
- Sicherheitsaspekte einbahniger Außerortsstraßen
- Besonderheiten zweibahniger Außerortsstraßen
- Ortsbesichtigungen
- Stellenwert des Audit-Verfahrens
- Projektaufgaben: Entwürfe für Außerortsstraßen und Ortsdurchfahrten in unterschiedlichen Planungsphasen
- Begleitende Auditierung von Entwürfen der Brandenburger Straßenverwaltung
- Abschlussgespräch

Das Zertifikat bezieht sich auf die Tätigkeit als Auditor/in in der Straßenbauverwaltung des Landes Brandenburg und bedarf der Bestätigung nach jeweils drei Jahren. Voraussetzung dazu ist die regelmäßige Teilnahme an den von der Obersten Straßenbebauverwaltung des Landes Brandenburg empfohlenen Nachschulungen.

Conclusions

1. Prevention is better than cure
2. RSA can be applied to all kinds of road projects
3. RSA is an important tool of the Quality Management in Road Design
4. RSA is an important argument in rivalry competitive situations